

ANGUS MUNN WOODBURY
1886-1964

Vasco M. Tanner¹

Angus Munn Woodbury, Professor of Biology, Emeritus, University of Utah, Salt Lake City, and his wife, Grace Atkin Woodbury, were killed in a two-car head-on collision Saturday, August 1, 1964, a mile north of Loveland, Colorado, on U.S. Highway 287. Dr. Woodbury was employed, at the time of his death, as a lecturer at the BSCS Institute at the State University of Colorado, Fort Collins.

Angus M. Woodbury was born in Saint George, Utah on July 11, 1886. His parents, John Taylor Woodbury and Mary Evans Woodbury, were early settlers in St. George. They were highly respected members of this isolated pioneer settlement. Dr. Woodbury early took advantage of educational opportunities. He attended the Brigham Young University in 1906, after which he became assistant Forest Ranger in 1908. He retired from the forest service in 1920, having advanced to that of deputy supervisor. From 1920 to 1926 he was engaged in agricultural work and was teaching assistant at Dixie Junior College. In 1926 he again attended Brigham Young University, graduating in 1927 with a Bachelor of Science degree, with a major in zoology.

In the fall of 1927 Dr. Woodbury began his graduate work in zoology at the University of Utah. He was granted a Master of Science Degree in the spring of 1928. After serving as an instructor in 1929 he made preparations to continue his training in zoology at the University of California, Berkeley, from which institution he graduated with a Doctor of Philosophy Degree in 1931. In 1925 he was appointed Park Naturalist at Zion National Park which position he held during the summers until 1933. It was while serving as a pioneer naturalist that he became interested in ecology which resulted in his two major contributions in this field: *Biotic Relationships of Zion Canyon, Utah with Special Reference to Succession*, 1933, and *Principles of General Ecology*, 1953.

In 1931 Woodbury attained the rank of Assistant Professor at the University of Utah, and advanced to Associate Professor in 1939, and Professor in 1942. He was made head of the Department of Vertebrate Zoology in 1948 and retired as Emeritus professor in 1952.

Retirement had no deterring effects on Woodbury's activities since he served as director of Ecological Research at Dugway Proving Grounds from 1952 to 1956. In 1957 he was made director of Ecological Research on the Colorado River Project which position he held until 1964. His ability to organize and direct research work on the Ecology of Disease Transmission in native animals at Dugway met with great favor by the Army Chemical Corps. The monographic reports on the flora and fauna of the Upper Colorado River Basin carried out in connection with several collaborators, laid the founda-

1. Professor of Zoology and Entomology, Brigham Young University, Provo, Utah.



Angus M. Woodbury, general ecologist, biologist:
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tion for future work on the ecology of this new recreational waterway, Lake Powell. One of the convincing arguments made in support of the protection of Rainbow Bridge without building a dam on Aztec Creek, was made by Dr. Woodbury—*Science*, 1961, 133(3464): 1572-1583.

His accomplishments were many. One that stood out was his teaching ability. He was a devoted leader of his students. His quiet, kindly manners endeared him to his students and friends. His lectures were well organized and frequently interspaced with clever, meaningful jokes followed by a "whisper-soft laugh". He drew from his scholarly background and wide field experience many clinching examples to buttress his reasoning.

Professor Woodbury's publications, which include several books, number over 100 and cover a wide range of subject matter. He was greatly interested in the history of Utah, as evidenced by his several papers including: *The Route of Jedediah S. Smith in 1826 from the Great Salt Lake*; and *A History of Southern Utah and its National Parks*. He was well informed on Utah birds. As a senior co-author with Clarence Cottam and John Sugden, a sizeable manuscript on the birds of Utah awaits publication. These three authors did, however, publish in 1949: *An Annotated Checklist of the Birds of Utah*. In 1945 Woodbury and Henry N. Russell published: *Birds of the Navajo Country*, 158 pages. Woodbury's interest in the reptiles of Utah resulted in two published reports: *Catalogue of the Reptiles of Utah* and *Studies of the Desert Tortoise, Gopherus agassizii* (with Ross Hardy), which will long be useful references when dealing with this class of Utah animals. A complete list of all of Dr. Woodbury's published papers is included as a part of this paper.

Professor Woodbury was an active and enthusiastic supporter of a number of professional organizations. He was punctilious as to his attendance and participation in society meetings, even though it necessitated his traveling long distances outside of Utah. Some of the scientific organizations of which he was a member and his rank follow: Fellow of the American Association for the Advancement of Science; Fellow of the American Ornithological Union and a member of the council of this organization; Fellow of the Herpetological League; Fellow, Utah Academy, Science, Arts and Letters; Member, Population Reference Bureau; Member, American Society Ichthyologists and Herpetologists; Member, Ecological Society of America; Member, Cooper Ornithological Society; Member, Biological Society of Washington; Member, Nature Conservancy; and Member, American Museum Natural History. He was active in the Audubon Society Program in Utah.

Angus M. Woodbury and Grace Atkin were married on January 15, 1909. They are survived by their four sons and two daughters: Lowell Angus; Marian (Mrs. A. Herbert Gold); Max Atkin; Edith Rae (Mrs. Robert C. Pendelton); Dixon Miles; and John Walter. The sons all have Ph.D. degrees in the biological sciences, having followed in their father's footsteps. The daughters did not depart

from the field of biology since they are married to Ph.D. biologists.

I have never known a more devoted couple than Angus and Grace Woodbury. After marriage their ontogony was such that their lives, home life and research activities resulted in an integrated family life. They traveled together in field study activities and made their home a haven for biology students. Mrs. Woodbury once said, "I early learned to live in peaceful coexistence with a scientist."

Few native sons of Utah have risen to such prominence in the field of biology as did Angus M. Woodbury. His untimely death came as a great shock to his family, colleagues, and host of friends. At the time of his death he was actively engaged in several research projects. His accomplishments and influence as a teacher will live on in the enrichment of the lives of others.

LIST OF ANGUS M. WOODBURY PUBLISHED PAPERS 1927-1964

1927

Studies in the Sphecoidea of Utah. *Utah Acad. Sci., Proc.* 4:27-28, 1927.

1928

The reptiles of Zion National Park, [Utah]. *Copeia* No. 166:14-21, March 23, 1928.

The reptiles of Zion National Park. *Utah Acad. Sci., Proc.* 5:11-12, 1928.

1929

Notes on the spiders of Washington County, Utah [with *R. V. Chamberlin]. *Biol. Soc. Wash., Proc.* 42:131-141, Pls. I and II. March 30, 1929.

The snails of Zion National Park. *Nautilus* 43:54-61, October, 1929.

A new rattlesnake from Utah. *Univ. Utah Bull.* 20(6), *Biol. Ser.* 1(2), 3 pp., 2 figs., December, 1929.

1930

Insect studies of Zion National Park. *Utah Ed. Rev.* 23:382-383, 403, 404, April, 1930.

Crotalus confluentus concolor (Woodbury). *Antivenin Inst. Amer., Bull.* 4:23, May, 1930.

1931

A descriptive catalog of the reptiles of Utah. *Univ. Utah Bull.* 21(5), *Biol. Ser.* 1(4), x + 129 pp., 58 figs., February, 1931.

The route of Jedediah S. Smith in 1826 from the Great Salt Lake. *Utah Hist. Quart.*, 4:35-46, April, 1931.

A list of the common birds of Zion National Park. [List XI, p. 169, *Bird watching in the west*, R. S. Twining]. Metropolitan Press, Portland, Oregon, October, 1931.

1933

The scratching of the spurred towhee. *Condor* 35:70, March, 1933.

Biotic relationships of Zion Canyon, Utah, with special reference to succession. *Ecol. Monogr.* 3:147-246, 29 figs., April, 1933.

The bird rookeries of the islands of Great Salt Lake [with W. H. Behle]. *Utah Acad. Sci., Proc.* 10:165, 1933.

Animal life. Conservation and management of wild life. [Editor and contributor Parts IX and X in] *Utah resources and activities*, Utah State Board of Education, 1933.

1936

Animal relationships of Great Salt Lake. *Ecology* 17:1-8, 1 fig., January, 1936.

1937

Planning for the conservation of Utah's wildlife. *Utah Ed. Rev.* 30:173-174, February 8, 1937.

An evolutionary time scale. *Evolution* 4:7-8, illus., June, 1937.

A brown pelican record from Utah. *Condor* 39:225, September, 1937.

A record of *Tadarida macrotis* from Utah. *Jour. Mamm.* 18:515, November 14, 1937.

- 1938 The Lower Sonoran in southwestern Utah. *Science* 87:484-485, May 27, 1938.
Red-naped sapsucker and rufous hummingbird. *Condor* 40:125, May, 1938.
An hour in the life of a broad-tailed hummingbird [with John W. Sugden]. *Ibid.* 40:160-162, 1 fig., July, 1938.

- 1939 Bird records from Utah and Arizona. *Ibid.* 41:157-163, July, 1939.
Observations on the breeding of the western chipping sparrow. *Oologist* 56: 114-116 (No. 629), October, 1939.
[Abstract] Management of aquatic wildlife in the Great Basin. *Utah Acad. Sci., Arts Lett., Proc.* 16:41, 1939.
[Abstract] Reproductive cycles in the sagebrush lizard *Sceloporus g. graciosus* [with Marian Woodbury]. *Ibid.* 16:65, 1939.

- 1940 Management of aquatic wildlife in the Great Basin. *Sci Monthly* 50:307-322, illus., April, 1940.
Antler-eating by rodents. *Science*, 92:127-128, August 9, 1940.
Northern crested lizard collected in Utah [with Ross Hardy]. *Copeia* 1940 (3):205, November 14, 1940.
The dens and behavior of the desert tortoise [with Ross Hardy]. *Science* 92: 529, December 6, 1940.
Pigmy conifer limits in Utah. *Utah Acad. Sci., Arts Lett., Proc.* 17:13, 1940.

- 1941 Nesting of the gray flycatcher [with *Henry N. Russell, Jr.]. *Auk* 58:28-37, January, 1941.
Copulation in gopher snakes. *Copeia* 1941(1):54, March 25, 1941.
Bird habitats of the Salt Lake Region. *Audubon Mag.* 43:253-264, Illus., May, 1941.
Animal migration—periodic-response theory. *Auk* 58:463-505, October, 1941.
Changing the "hook-order" in cows. *Ecology* 22:410-411, October, 1941.

- 1942 Man's biological future. *Science* 95:121-122, January 30, 1942.
Studies of the rat snake. *Elaphe laeta*, with description of a new subspecies [with Dixon M. Woodbury]. *Biol. Soc. Wash., Proc.* 55:133-142, 2 figs., October 17, 1942.
Notes on migrations of the painted lady butterfly in 1941 [with John W. Sugden and Clyde Gillette]. *Pan.-Pac. Ent.* 18:165-176, 1 fig., October, 1942.
Status of the name *Crotalus concolor*. *Copeia* 1942(4):258, December 28, 1942.
My rattlesnake bite. *Utah Acad. Sci. Art. Lett., Proc.* 19:179-184, 1942 [printed 1944].

- 1943 The Joshua tree flower as a source of food [with Maurine Noall, Corliss R. Kinney, and James Sugihara]. *Ibid.* 20:49-50, 1943 [printed 1944].
Report of rattlesnake bite of J. Dwain Anderson [with Mrs. J. Dwain Anderson]. *Ibid.* 20:185-188, 1943 [printed 1944].

- 1944 Type locality of *Perisoreus canadensis capitalis* Ridgway [with Clarence Cottam] *Auk* 61:131-132, January, 1944.
Research on the high school level. *Nation's Schools* 33:47, February, 1944.
Research is needed in high schools and colleges. *Utah Ed. Rev.* 37:271-273, 306, May 8, 1944.
A history of southern Utah and its national parks. *Utah Hist. Quart.* 12:111-22, illus., July-October, 1944 [printed in 1945; revised and reprinted in 1950].
Notes on Mexican snakes from Oaxaca [with Dixon M. Woodbury]. *Wash.*

Acad. Sci., Jour. 34:360-373, November 15, 1944.

Further light on the "fossil" bird nests of the Great Salt Lake Desert [with *William H. Behle and Walter P. Cottam]. *Utah Acad. Sci. Art. Lett., Proc.*, 21:4, 1944.

1945

Birds of the Navajo country [with Henry Norris Russell, Jr.]. *Univ. Utah Bull.* 35(14), *Biol. Ser.* 9(1), 158 pp., 7 figs., 1 fold. map, March 1, 1945.

A new *Gerrhonotus* lizard from Utah. *Biol. Soc. Wash., Proc.* 58:5-10, 2 figs., March 21, 1945.

[Abstract] Results of color-banding California Gulls at Egg Island, Great Salt Lake, Utah [with William H. Behle]. *Utah Acad. Sci. Art. Lett., Proc.* 22:8, 1945.

Life-history studies of the sagebrush lizard *Sceloporus g. graciosus* with special reference to cycles in reproduction [with *Marian Woodbury]. *Herpetologica* 2:175-196, 3 figs., 1945.

1946

Huge migratory flock of purple martins in Utah. *Condor* 48:42, January, 1946.

Color-banding California Gulls at Great Salt Lake, Utah [with William H. Behle and John W. Sugden]. *Univ. Utah Bull.* 37(3), *Biol. Ser.* 10(2), 14 pp., 2 figs., June 30, 1946.

1947

Notes on migrations of the Painted Lady butterfly in 1945 [with *John W. Sugden and Clyde Gillette]. *Pan.-Pac. Ent.* 23:79-83, April, 1947.

The Mohave rattlesnake in Utah [with Ross Hardy]. *Copeia* 1947(1):66, April 20, 1947.

Distribution of pigmy conifers in Utah and northeastern Arizona. *Ecology* 28:113-126, 6 figs., April, 1947.

[Review of] The puma, mysterious American cat. *Ibid.* 28:328-329, July, 1947.

The speckled rattlesnake in NW Arizona [with Ross Hardy]. *Herpetologica* 3:169, 1947.

1948

Studies of the desert tortoise, *Gopherus agassizii* [with Ross Hardy]. *Ecol. Monogr.* 18:145-200, 25 figs., April, 1948.

Animals and salinity in the Great Basin. *Amer. Nat.* 82:171-187, 3 figs., May, 1948.

Marking reptiles with an electric tattooing outfit. *Copeia* 1948(2):127-128, June 30, 1948.

Resource problems of Utah. [In symposium on conservation of natural resources in Utah.] *Utah Acad. Sci. Art. Lett., Proc.* 25:55-57, 1948 [printed 1950].

1949

Annotated check-list of the birds of Utah [with Clarence Cottam and John W. Sugden]. *Univ. Utah Bull.* 39(16), *Biol. Ser.* 11(2), 39 pp., March, 1949.

Ecology and national welfare. *Amer. Soc. Prof. Biol., News* 3:3, 8, November, 1949.

1950

[Revision of] A history of southern Utah and its national parks. *Utah Hist. Quart.* 12:111-223, illus., July-October 1944 [rinted in 1945; revised and reprinted in 1950].

Unusual snake records from Utah and Nevada [with Earl W. Smart]. *Herpetologica* 6:45-47, 1950.

A snake den in Tintic Mountains, Utah [with Richard M. Hansen]. *Ibid.* 6:66-70, 2 figs., 1950.

1951

A snake den in Tooele County, Utah. [Introduction—a ten year study]. [Introduction to symposium with Basil Vetas, Gordon Julian, Henry R. Glissmeyer, F. LaMarr Heyrend and Anson Call, Earl W. Smart, and Raymond T. Sanders.] *Ibid.* 7:14, 7 figs., March 27, 1951.

Results of the Pacific gull color-banding project [with Howard Knight]. *Condor* 53: 57-77, 11 figs., March 27, 1951.

Meteorological data in ecology. *Science* 114:216-217, August 24, 1951.

1952

- a. Ecological Taxonomy. *Science*, 115 (2992), May 2.
- b. Hybrids of *Gopherus berlandi* and *G. agassizii*. *Herpetologica*, 8:33-36, July 15.
- c. Amphibians and reptiles of the Great Salt Lake Valley. *Herpetologica*, 8:42-50, July 15.

1953

Methods of field study in reptiles. *Herpetologica*, 9:87-92, July 22.

1954

- a. Principles of general ecology. McGraw-Hill Book Co., New York. 503 pp.
- b. Ecology of Disease transmission in native animals. Semi-annual report of the Director, Ecological Research, University of Utah.
- c. Study of reptile dens. *Herpetologica*, 10:49-55.

1955

- a. An annual cycle of the desert jackrabbit. *Ecology*, 36:353-356.
- b. Science, population and arid lands. *Science*, 122:200.
- c. Ecology and th population problem. *Science*, 122:831-834.
- d. Ecology of tularemia transmission in native animals. The 1954-1955 annual report of the Director, Ecological Research, Univ. Utah. 57 pp.
- e. [Editor and contributor] Symposium on ecology of disease transmission in native animals. Army Chemical Corps, Dugway, Utah. 1-112.
- f. Ecological studies of tularemia in Utah. In symposium on ecology of disease transmission in native animals. Army Chemical Corps, Dugway, Utah, 81-87.

1956

- a. [Editor] Ecological check lists (from Dugway, Utah): plants, invertebrates, vertebrates. The Great Salt Lake Desert Series, Ecol. Research. University of Utah. 125 pp.
- b. The Colorado dam controversy. *Sci. Monthly*, 82:304-313.
- c. Symposium on uses of marking animals in ecological studies: Introduction. *Ecology* 37:665; Marking amphibians and reptiles. *Ecology* 37:670-674.
- d. [With *Billy N. Day and Harold Egoscue] The Ord Kangaroo rat in captivity. *Science* 124 (3220):485-486.

1957

- a. Comfort for survival. Vantage Press, N.Y., 104 pp., March 25.
- b. The Colorado dam controversy. *Sci. Monthly*, 8:199-200.

1958

- a. [and staff members] Preliminary report of biological resources of the Glen Canyon Reservoir. *Univ. Utah, Anthropological papers*, 31:1-219, (Glen Canyon Series, No. 2).
- b. The name [*Crotalus viridis concolor* Woodbury.] *Copeia*, 1958:151.
- c. [and Grace A. Woodbury] Ralph Vary Chamberlin, educational and cultural contributions. *The Biologist*, 40:21-26.

1959

- a. [with Stephen D. Durrant and Seville Flowers] Survey of vegetation in the Glen Canyon Reservoir Basin. *Univ. Utah, Anthropological Papers* 36:1-53 (Glen Canyon Series No. 5).
- b. Clasping behavior of the leopard lizard. *Herpetologica*, 15:118.
- c. [Biological editor] Ecological studies of the flora and fauna in Glen Canyon. *Univ. Utah Anthro. Papers*, No. 40:1-226.
- d. Working plan for ecological studies, Glen Canyon Reservoir, Upper Colorado River Basin. *Univ. Utah Anthro. Papers*, 40:1-20. [Original Report to National Park Service, 1957].
- e. Amphibians and reptiles of Glen Canyon. *Univ. Utah Anthro. Papers*, 40:135-148.
- f. Ecological Study of Colorado River in Glen Canyon. *Univ. Utah Anthro. Papers*, 40:149-176.

1960

- a. [with S. D. Durrant and Seville Flowers] A survey of vegetation in the Flaming Gorge Reservoir Basin. *Univ. Utah Anthro. Papers*, 45:1-121.
- b. The Colorado River—the physical and biological setting. In the Colorado . . . River of the West. *Utah Hist. Quarterly*, 28:199-208.
- c. Protecting Rainbow Bridge. Study of dangers to Rainbow Bridge from waters of Glen Canyon Reservoir brings surprising answers, *Sci.*, 132: 519-528, Aug. 26.
- d. Animal Community. Published in Encyclopedia of Technology and Science. McGraw-Hill, N.Y., pp. 409-411.
- e. Rainbow Bridge, a letter to the Editor in reply to F. R. Fosberg. *Science* 132 (3435):1262, October 28.
- f. The desert tortoise needs protection. *El Paisano*, Banning, Calif. No. 19: 6-7.

1961

- a. [with *Monroe E. Wall] Steroidal sapogenins from the joshua tree. *J. Economic Botany* 15:79.
- b. Protection of Rainbow Bridge National Monument. *Sci.* 133(3464):1572-1583.
- c. [with S. D. Durrant and Seville Flowers] Survey of vegetation in the Navajo Reservoir Basin. *Univ. Utah Anthro. Papers*, 51:99.
- d. Editor. Ecological studies of the flora and fauna of Navajo Reservoir basin, Colorado and New Mexico. *Univ. Utah Anthro. Papers*, 55. Biota, an introduction and summary, 55:1-14.

1962

- a. [with S. D. Durrant and Seville Flowers] A survey of vegetation in the Curecanti Reservoir basins. *Univ. Utah Anthro. Papers*, 56:1-98.
- b. [with Clarence Cottam] Ecological studies of birds in Utah. *Univ. Utah Biol. Series*, 12(7).1-28.
- c. Editor. Ecological studies of the flora and fauna of the Curecanti Reservoir basins, western Colorado. *Univ. Utah Anthro. Papers* 59:1-285. Foreword, introduction and summary, p. 1-11.

1963

- a. [with Jean Musser] A limnological study of the Fremont River, Capitol Reef National Monument. Special Report to Regional Office, U. S. National Park Service, Sante Fe, N. M., 52 pages.
- b. Editor. Studies of biota in Dinosaur National Monument, Utah and Colorado. *Univ. Utah Div. Biol. Sci. Misc. Papers*, 1:1-77. Introduction, 2 pp.
- c. [with Delbert W. Argyle] Ecology and limnology of Green River. In *Univ. Utah Div. Biol. Sci. Misc. Papers* 1:7-48.
- d. Biological-ecological aspects of Betatakin Canyon, Navajo National Monument, Arizona. *Univ. Utah Div. Biol. Sci., Misc. Papers* 2:1-56.
- e. Cartoon highlights of Orin Nelson Woodbury, by Grace A. Woodbury. 12 p. Edited and published by Angus M. Woodbury, 248 University St., Salt Lake City.
- f. Reminiscences of Ann Cannon Woodbury. Arranged, edited and privately published by Angus M. Woodbury, 248 University St., Salt Lake City, Utah.

1964

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- b. Disease dissemination among biotic communities of the Great Salt Lake Desert. *Bull. Univ. Utah No.* . . . ; *Inst. of Env. Biol. Research, Misc. Papers*, No. 4; *Bull. of Utah Engineering Exp. Station*, No. . . . , 282 pp.